FACT SHEET

NPDES PERMIT MODIFICATION
PUBLIC NOTICED: DECEMBER 2015

APPLICANT	***PFIZER INC.***
NPDES PERMIT NO.	*CT0000957*
NPDES APPLICATION NO.	*201505405*
DATE APPLICATION RECEIVED	*August 17, 2015*
FACILITY IDENTIFICATION	*059-003*
LOCATION ADDRESS	*445 Eastern Point Road* *Groton, Connecticut 06340*
FACILITY CONTACT	*Eric Watters, Senior Manager/EHS Lead* *Office: (860) 715-0088* *FAX: (860) 441-5131* *Eric.Watters@pfizer.com*
MAILING ADDRESS	*445 Eastern Point Road MS 9090-073* *Groton, Connecticut 06340*
DMR CONTACT	*Eric Watters*
PERMIT TERM	*5 years*
PERMIT CATEGORY	*NPDES:* ☐ *Major* ☒ *Minor*
SIC CODE	*8731 (Commercial Physical and Biological Research)*
PERMIT TYPE	*Modification*
OWNERSHIP	*Private*
RECEIVING WATER	*Thames River*
WATER BODY SEGMENT ID	*CT-E1_014-SB*
SURFACE WATER DISCHARGE LOCATIONS	*DSN 008-1: Latitude (41° 19' 50") Longitude (72° 04' 44")*
DEEP STAFF ENGINEER	*Christine Gleason (860-424-3278)* *christine.gleason@ct.gov*

PERMIT FEES

Application Filing Fee: *$940. Paid on August 17, 2015*
Application Processing Fee*: None.*

Annual Fee*:*

DISCHARGE CODE	WASTEWATER CATEGORY (per 22a-430-7)	MAXIMUM GPD	DSNs	ANNUAL FEE (per 22a-430-7)
102000b	***Cooling Water (Non-Contact)***	*37,500*	*008-1*	*656.25*
1170000	***Blowdown from Heating and Cooling*** *(Boiler Bleed Off/Draining; Boiler Blowdown; Boiler Laboratory Testing Wastewater; Boiler Washdown; Cooling Tower Blowdown/Draining)*	---	*008-1*	*4,337.50*

DISCHARGE CODE	WASTEWATER CATEGORY (per 22a-430-7)	MAXIMUM GPD	DSNs	ANNUAL FEE (per 22a-430-7)
121000a	***Hydrostatic Pressure Testing Wastewater*** *(Hydrostatic Test Water)*	*0-50,000*	*008-1*	*660.00*
1080000	***Stormwater*** *(Spill Containment Stormwater; Stormwater)*	---	*008-1*	*2,912.50*
1060000	***Water Production Wastewater*** *(Resin Regeneration Wastewater; Reverse Osmosis Brine; Sand Filter Backwash; Water Softener Regeneration Wastewater)*	---	*008-1*	*660.00*
---	***Miscellaneous*** *(Air Compressor Condensate; Air Conditioner Condensate; Backflow Preventer Wastewater; Building Maintenance Wastewater; Chilled Water; Dewatering Wastewater; Fire Suppression Test Water; Pump Seal Water; Shell and Tube Heat Exchanger Wastewater; Steam Cleaning and Powerwashing; Steam Condensate; Strainer Cleaning Wastewater)*	---	*008-1*	*0*
TOTAL				***$9,226.25***

I. PERMIT APPLICATION

On August 17, 2015, the Department of Energy and Environmental Protection ("Department") received an application (Application No. 201505405) from Pfizer Inc. ("Pfizer", "Permittee", "Applicant") for the modification of its NPDES permit, CT0000957. A Notice of Permit Application was published in *The Day* on August 10, 2015 consistent with the requirements of Section 22a-6g of the Connecticut General Statutes ("CGS"). This application for modification was submitted in conjunction with the on-going work to eliminate the use of Pfizer's intake structure on the Thames River, which currently provides once-through cooling water to its facility. Pfizer seeks authorization for the following activities:

To discharge the following:

DISCHARGE SERIAL NUMBER (DSN)	PROPOSED AVERAGE MONTHLY FLOW (gpd)	PROPOSED MAXIMUM DAILY FLOW (gpd)	PROPOSED WASTESTREAMS	TREATMENT TYPE	RECEIVING WATER
008-1	500,000	750,000	*Air Compressor Condensate; Air Conditioner Condensate; Backflow Preventer Wastewater; Boiler Bleed Off/Draining; Boiler Blowdown; Boiler Laboratory Testing Wastewater; Boiler Washdown; Building Maintenance Wastewater; Chilled Water; Cooling Tower Blowdown/Draining; Dewatering Wastewater; Fire Suppression Test Water; Hydrostatic Test Water; Non-Contact Cooling Water; Pump Seal Water; Resin Regeneration Wastewater; Reverse Osmosis Brine; Sand Filter Backwash; Shell and Tube Heat Exchanger Wastewater; Spill Containment Stormwater; Steam Cleaning and Powerwashing Wastewater; Steam Condensate; Stormwater; Strainer Cleaning Wastewater; Water Softener Regeneration Wastewater*	Oil/Water Separation (select wastestreams); Heat Dissipation/ Removal; Equalization; pH adjustment	Thames River

The major changes associated with the permit modification include: 1) A reduction in flow associated with DSN 008-1 due to the elimination of the once-through cooling water; 2) Modifications to the existing treatment system to provide for additional/new treatment for the remaining DSN 008-1 wastestreams; 3) Elimination from the NPDES permit of both the cooling water intake (INTAKE 01-H) and the intake structure screen backwash (DSN 009-1).

II. SUMMARY OF MODIFICATIONS MADE TO THE EXISTING NPDES PERMIT

On May 22, 2014, Pfizer was issued a NPDES permit, CT0000957, for the authorization of the discharge of utilities-related wastewaters from its Groton facility into the Thames River. The existing NPDES Permit, CT0000957, includes two discharge points (DSN 008-1 and DSN 009-1) and one intake (INTAKE 01H). This permit has been modified twice since issuance: 1) Modification 1 (October 10, 2014): A minor modification to correct typographical errors and incorporate a 22a-430-3i modification; 2) Modification 2 (November 24, 2014): A minor modification to change a reporting unit.

III. STATUS OF SPECIAL CONDITIONS/COMPLIANCE SCHEDULES IN PERMIT

The existing NPDES Permit, CT0000957, includes one special condition/compliance schedule, Section 10(A). Section 10(A) of the permit requires the Permittee to undertake its section 316(b) project. This work has been on-going since permit issuance. The projected target date for completion is December 31, 2015. Implementation of the 316(b) project will result in the elimination of Pfizer's cooling water intake structure.

IV. GENERAL SITE INFORMATION

A. FEDERALLY-RECOGNIZED INDIAN LAND

No changes from the Fact Sheet for the permit renewal.

B. COASTAL AREA/COASTAL BOUNDARY

The activity is located within a coastal boundary as defined in CGS 22a-94(b). A Coastal Consistency Review Form has been submitted with the application describing proposed activities related to the permit modification. Staff of the Department's Long Island Sound Program has conducted a review of the information included on the form and has determined that the activities proposed should not pose any inherent threats to coastal resources.

C. ENDANGERED, THREATENED, AND SPECIAL-CONCERN SPECIES

The natural diversity database maintained by the Department's Bureau of Natural Resources indicates that there are records of State-threatened *Alosa aestivalis* (blueback herring) in the vicinity of the site. Staff of the Department's Fisheries Division has conducted an evaluation of the proposed activities identified in the subject application and has determined that the proposed modification would not be expected to impact the blueback herring.

D. AQUIFER PROTECTION AREAS

No changes from the Fact Sheet for the permit renewal.

E. CONSERVATION OR PRESERVATION RESTRICTION

No changes from the Fact Sheet for the permit renewal.

F. PUBLIC WATER SUPPLY WATERSHED

No changes from the Fact Sheet for the permit renewal.

V. RECEIVING WATER INFORMATION

No changes from the Fact Sheet for the permit renewal.

VI. NATURE OF BUSINESS GENERATING THE DISCHARGE

No changes from the Fact Sheet for the permit renewal.

VII. FACILITY DESCRIPTION

No changes from the Fact Sheet for the permit renewal, except for the following:

By December 31, 2015, Pfizer will discontinue the use of its cooling water intake structure (INTAKE 01H in the NPDES permit). The intake structure is no longer necessary because upgrades/improvements have been made to the existing cooling water system at the site. Since DSN 009-1 is the discharge associated with backwashing the intake structure's traveling screens, it will also be eliminated. The only remaining discharge will be DSN 008-1. However, this discharge will now be significantly reduced in volume and changed in composition since there will no longer be a large volume of once-through cooling water in the discharge.

See Attachment 1 for the site map.

VIII. THE ON-SITE WASTEWATER COLLECTION/TREATMENT SYSTEM

The utilities wastewaters continue to be collected and treated as follows:

A portion of the utilities wastewater from the Power Plant (Buildings 101, 165, and 168) discharges into Pump Station No. 2 (PS2). All of the utilities wastewater from the Cogen Building (B160), as well as stormwater collected in the secondary containment areas for the Building 160 tank truck unloading area, the diesel fuel tank, and the aqueous ammonia tank, also discharge into PS2. The remainder of the utilities wastewaters from the Power Plant discharge into Pump Station No. 4 (PS4), which also receives stormwater runoff that flows into several catch basins located in the vicinity of the Power Plant. PS2 and PS4 are interconnected such that if the pumps in one of the stations is disabled, the water collected in that pump station will overflow into the pump station with the active pumps. From either or both pump stations, the wastewater is pumped to Manhole 11. From Manhole 11, wastewater flows by gravity to into Area 1 of the West Equalizing Basin, a 1,140,633 gallon equalization tank. Treatment in the West Equalizing Basin consists of equalization of high temperature waters and pH adjustment. The treated wastewater is discharged from the West Equalizing Basin via DSN 008-1 into the Thames River through a submerged multiport diffuser.

The existing collection/treatment system is designed for both the once-through cooling water (99% of the discharge) and the utilities wastewaters generated at the site (remaining 1% of the discharge). The applicant proposes to make certain modifications to its existing collection/treatment system in order to accommodate the remaining utilities wastewaters in DSN 008-1. These include the following:

- A new neutralization system is proposed for Building 168. The system will consist of a 5,000 gallon pretreatment/equalization tank and coarse/fine pH adjustment in two 3,000 gallon tanks. The system is designed for 300 gpm and will use sulfuric acid and sodium hydroxide to pH adjust the wastewater. Effluent from this system will be pumped to Manhole 11 and will then gravity flow into the West Equalizing Basin. The existing neutralization system in the West Equalizing Basin will continue in use.

- Physical modifications are proposed for the West Equalizing Basin to allow for proper flow measurement at the reduced flow volumes. The modification includes constructing a concrete

reinforced wall within the West Equalizing Basin, installing two-eight inch diameter pipes through the wall, and installing a trapezoidal weir at the top of the wall.

- New equipment is proposed to be used to reduce the temperature of the utilities wastewaters. This equipment includes a modular splash fill pack and spray nozzle system and associated temperature probes. The fill pack and spray nozzle system functions similar to a cooling tower whereby the wastewater to be cooled is sprayed over a fill pack media and then flows through the media and into the water in the Basin below. The system will automatically activate when the temperature probes in the Basin reach a pre-determined set point. In addition, pinch valves in the Basin will prohibit high temperature waters from being discharged into the River.

- New flow monitoring/sensing equipment is proposed to be installed in PS2/PS4 (level controllers), in the 5,000-gallon pretreatment equalization tank (level controllers), in the two 8-inch diameter pipes in the West Equalizing Basin (Rosemount® Series 8700 Magnetic Flowmeters). In addition, a Teledyne ISCO TIENet® 330 Signature® bubbler flowmeter will measure flow through the trapezoidal weir.

IX. EFFLUENT QUALITY DATA

See Attachment 2 for a summary of DMR data from permit issuance to present.

X. MONITORING/EFFLUENT VIOLATIONS

Based on a review of Pfizer's DMRs from permit issuance to present, the following effluent violations were noted:

MONTH/YEAR	DSN	PARAMETER VIOLATED	TYPE OF LIMIT	PERMITTED LIMIT	REPORTED VALUE
Feb 2015	008-1	Bis(2-ethylhexyl) phthalate	Average Monthly Maximum Daily	2.2 µg/L 3.2 µg/L	3.28 µg/L 9.84 µg/L
REASON: ☐ Equipment Related ☐ Operator Error ☐ Other ☒ Unknown					
DSN 008-1 consists primarily of Thames River water used for cooling. A Thames River sample was also analyzed for Bis(2-ethylhexyl) phthalate concurrent with the DSN 008-1 samples that had the exceedance of Bis(2-ethylhexyl) phthalate, noted above. The levels of Bis(2-ethylhexyl) phthalate in both the DSN 008-1 samples and the Thames Rivers samples were similar. Pfizer concludes that the likely source of Bis(2-ethylhexyl) phthalate was from the Thames River.					

MONTH/YEAR	DSN	PARAMETER VIOLATED	TYPE OF LIMIT	PERMITTED LIMIT	REPORTED VALUE
June 2015	008-1	Bis(2-ethylhexyl) phthalate	Average Monthly Maximum Daily	2.2 µg/L 3.2 µg/L 208 g/day 304 g/day	158 µg/L 158 µg/L 3,887 g/day 3,887 g/day
REASON: ☐ Equipment Related ☐ Operator Error ☐ Other ☒ Unknown					
A duplicate sample was taken of the DSN 008-1 sample that had the exceedance noted above. Pfizer instructed its lab to also analyze the duplicate sample to determine the level of Bis(2-ethylhexyl) phthalate in that sample. No Bis(2-ethylhexyl) phthalate was detected in the duplicate sample.					

Based on a review of Pfizer's DMRs from August 2008 to March 2013, the following operational, monitoring, or reporting violations were noted:

- ***November 2014***: Dissolved Oxygen was not monitored due to a procedural error.

- ***May/June 2015***: The meter associated with measuring Flow at the West Equalizing Basin was out of service for a brief time. During the time period that it was out of service, flows were estimated using the pumping rates of the salt water intake; compliance with the permitted flow rates was maintained.

XI. ENFORCEMENT & COMPLIANCE HISTORY

No changes from the Fact Sheet for the permit renewal.

XII. SPILL HISTORY (LAST FIVE YEARS):

No changes from the Fact Sheet for the permit renewal.

XIII. EFFLUENT GUIDELINES

The Permittee is engaged in steam electric generating activities at its site. However, the electricity that is generated is used primarily for the Pfizer campus. Infrequently, in times of critical demand, the electricity is distributed to Groton Utilities. As part of the NPDES permit renewal process, the determination that DSN 008-1 did not meet the applicability requirements set forth in 40 CFR 423 was made based on EPA's June 30, 1988 memorandum entitled "Guidance for NPDES Permits Issued to Electric Cogenerating Plants and Industrial Facilities with Electric Generating Plants". On September 30, 2015, EPA published *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, Final Rule, which among other things, clarified the applicability requirements of 40 CFR 423. As it relates to entities engaged in steam electric operations, the new clarified applicability requirements state that 40 CFR 423 applies to "…an establishment whose generation of electricity is the predominant source of revenue or the principal reason for operation." Under the new clarified applicability requirements in 40 CFR 423, DSN 008-1 is still not subject to 40 CFR 423.

None of the other Effluent Limitation Guidelines set forth in 40 CFR 405 - 471 apply to DSN 008-1.

XIV. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

RESOURCES USED TO DRAFT PERMIT			DISCHARGE POINT(S)
☐	Federal Effluent Limitation Guideline (ELG)		
☒	Regulations of Connecticut State Agencies (RCSA)	RCSA 22a-430-3 & 4	DSN 008-1
☒	Code of Federal Regulations (CFR)	40 CFR 122-125	DSN 008-1
☐	Performance Standards		
☐	Federal Development Document		
☐	Treatability Manual		
☒	Department File Information	Previous permit	
☒	Connecticut Water Quality Regulations	*Water Quality Standards*, October 10, 2013	DSN 008-1
☐	Antidegradation Policy		
☒	Coastal Management Consistency Review Form		DSN 008-1

RESOURCES USED TO DRAFT PERMIT			DISCHARGE POINT(S)
☒	Other	*Technical Support Document for Water Quality-Based Toxics Control*, 1991 ("TSD") *Effluent Limitations Guidelines and Standards for the Steam Electric Power Generating Point Source Category*, Final Rule, September 30, 2015	DSN 008-1

BASIS FOR LIMITS, STANDARDS OR CONDITIONS		DISCHARGE POINT(S)
☐	Best Available Technology (BAT)	
☐	Best Practicable Technology (BPT)	
☐	Best Conventional Technology (BCT)	
☐	New Source Performance Standards (NSPS)	
☒	Case-by-Case Determination using Best Professional Judgment (BPJ)	DSN 008-1
☐	Secondary Treatment	
☒	In order to meet in-stream water quality	DSN 008-1

A. WASTESTREAMS AUTHORIZED FOR DISCHARGE UNDER DSN 008-1:

No changes from the Fact Sheet for the permit renewal.

B. POLLUTANTS OF CONCERN FOR DSN 008-1:

No changes from the Fact Sheet for the permit renewal.

C. BASIS FOR DSN 008-1 LIMITS:

No changes from the Fact Sheet for the permit renewal.

D. TECHNOLOGY-BASED LIMITS FOR DSN-008-1:

No changes from the Fact Sheet for the permit renewal.

E. MIXING ZONES FOR DSN 008-1:

A different mixing zone will apply to DSN 008-1 now, because the flow will be reduced from 25,000,000 gallons (average monthly) to 500,000 gallons (average monthly). The existing dilution factor is 46:1. This dilution factor represents the value that will result in the smallest mixing zone. The new dilution factor is 60:1. This dilution factor represents the value that will result in the smallest mixing zone.

The maximum temperature limit remains 90 °F. Therefore, no changes are necessary to the thermal mixing zone, although it will now be smaller under the new reduced flow scenario.

F. WATER QUALITY-BASED LIMITS FOR DSN 008-1:

As defined in the TSD, reasonable potential is where an effluent is projected or calculated to cause an excursion above a water quality standard based on a number of factors, including at a minimum, the four factors listed in 40 CFR 122.44(d)(1)(ii). Because the composition of the new discharge is different than that of the existing discharge, a new reasonable potential analysis was conducted. The data used for the analysis consisted of the fourteen wastewater samples collected from PS2/PS4 from March 2014 to April 2015. [Note: These samples were collected prior to the full treatment that the utilities wastewater will receive in the new system and consequently, the results of the PS2/PS4 samples represent very conservative values.] See Attachment 3 for the reasonable potential analysis. This analysis indicates that reasonable potential exists for Bis(2-ethylhexyl) phthalate to exceed the applicable water quality criteria. Therefore, consistent with 40 CFR 122.44(d)(1)(iii), the permit will continue to include water quality-based limits for this parameter.

The background data for Copper in the Thames River is inconsistent. Specifically, from August 2008 to February 2014, the average value of copper in the Thames River was 0.8 µg/L. From August 2014 to August 2015, the average value of copper in the Thames River was 112 µg/L. This inconsistency will be investigated and a new reasonable potential analysis will be performed for Copper.

G. CASE-BY-CASE LIMITS FOR DSN 008-1:

Because the composition of DSN 008-1 will now be similar to that of a "low-volume waste" (as defined in 40 CFR 423) and because low volume wastes are limited by Total Suspended Solids, case-by-case limits are now proposed for Total Suspended Solids based on the limits set forth in RCSA Section 22a-430-4(s).

H. COMMENTS ON OTHER MONITORING PARAMETERS FOR DSN 008-1:

Total Nitrogen: Based on the Total Nitrogen results of PS2/PS4, the Total Nitrogen limit in the permit, which is based on the TMDL, *A Total Maximum Daily Load Analysis to Achieve Water Quality Standards for Dissolved Oxygen in Long Island Sound*, December 2000, will continue to be met.

I. WHOLE EFFLUENT TOXICITY:

No changes from the Fact Sheet for the permit renewal.

K. MONITORING FREQUENCY:

No changes from the Fact Sheet for the permit renewal.

XV. EXPRESSION OF EFFLUENT LIMITATIONS

No changes from the Fact Sheet for the permit renewal.

XVI. ANTI-BACKSLIDING

No changes from the Fact Sheet for the permit renewal.

XVII. ANTIDEGRADATION

No changes from the Fact Sheet for the permit renewal.

XVIII. SECTION 316(a) OF THE CWA

No changes from the Fact Sheet for the permit renewal.

XIX. SECTION 316(b) OF THE CWA

No changes from the Fact Sheet for the permit renewal.

XX. SPECIAL CONDITIONS/COMPLIANCE SCHEDULE

Two issues were identified during the review of the modification application that should be evaluated. The Permittee shall: 1) Conduct an investigation into the inconsistencies in the Copper background data; 2) Once the new DSN 008-1 discharge is initiated, conduct an evaluation to determine whether the MLs in Table A of the permit are the lowest MLs achievable. Section 10 of the permit is modified accordingly.